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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation and Related Issues	Rulemaking 13-11-005 (Filed November 14, 2013)

FIRSTFUEL SOFTWARE, INC. REPLY COMMENTS ON ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENT ON ENERGY EFFICIENCY BASELINE POLICY AND RELATED ISSUES

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I. INTRODUCTION

Pursuant to the direction set forth in the Assigned Commissioner's Ruling Seeking Comment on Energy Efficiency Baseline Policy and Related Issues ("Ruling") issued on April 21, 2016, and the April 28, 2016 Email Ruling Extending Deadline to Submit Comments, FirstFuel Software, Inc. (FirstFuel) respectfully submits the following reply comments in response to ORA/TURN. FirstFuel draws particular attention to the following issues submitted by ORA/TURN:

1) "Programs with Existing Conditions Baseline" in the White Paper should be changed to "Programs with Control or Comparison Case(s) as the Baseline" in order to more accurately represent Staff intent"[1]; and

[1] Joint Comments of the Office of Ratepayer Advocates and the Utility Reform Network on Administrative Law Judge's Ruling Seeking Comment on Energy Efficiency Baseline Policy and Related Issues filed on May 17, 2016. p. 1.

2) "The Commission should require the use of control or comparison groups of Normalized Metered Energy Consumption (NMEC) program whenever feasible. "[2]

ORA/TURN's opening comments provide a narrow application of energy efficiency baseline policy implementation, which seems to equate Randomized Control Trials (RCT) and Quasi-Experimental Designs, as the only method to measure savings from normalized meter-based consumption (NMEC) across all market segments. FirstFuel strongly advises the Commission to reject the aforementioned recommendations, as they are overly restrictive and don't allow for other analytics driven techniques to measure meter-based savings at the individual building level. FirstFuel focuses these comments on the commercial sector.

II. DISCUSSION

A) The Commission should not confuse NMEC and RCT/comparison groups

ORA/TURN provided the following statement in their opening comments as justification for renaming Existing Condition Baseline to Control and Comparison Groups:

- "the baseline for NMEC and RCT is not existing conditions because the efficiency of the existing equipment on the premises is not being systematically documented and compared to the efficiency of program measures in order to determine saving;" and
- "the baseline for NMEC and RCT programs is the energy consumption of the control or comparison case(s) that are being compared to post-intervention

[2] Joint Comments of the Office of Ratepayer Advocates and the Utility Reform Network on Administrative Law Judge's Ruling Seeking Comment on Energy Efficiency Baseline Policy and Related Issues filed on May 17, 2016. p. 7.

> energy consumption to determine savings. This is true both for RCTs and for NMEC quasi-experimental and pre/post designs."[3]

ORA/TURN's recommendation that a baseline for both NMEC and RCT is **only** energy consumption measured by control/comparison cases is mischaracterized. While comparison groups might be a good method for measuring energy efficiency savings in some market segments, applying this to all commercial buildings, can be complex and expensive. FirstFuel does not agree with using NMEC and RCT interchangeably in this context. Also, NMEC can be measured at the building level, and it doesn't have to default to the population level, which is a core component of RCT.

On February 10, 2016, FirstFuel provided informal comments to Energy Division on the AB 802 Workshops. Question viii. asked parties about the application of RCT and Experimental Design and it's feasibility for a broader application. FirstFuel provided the following response to this question:

> "FirstFuel supports Randomized Control Trials (RCT) for measuring efficacy at the population level. However, setting up a large scale, longitudinal study to represent the heterogeneous environment of all commercial and industrial classes can be exceptionally difficult and expensive. Also, the **RCT methodology will not decipher the savings gains achieved at a per-building level.** Alternative techniques like FirstFuel's automated, accurate base lining, plus avoided use calculations, can be carried out for **every** building, and it would avoid the need for scoping a massive population level RCT study. FirstFuel's building-by-building savings approach and an RCT can be complementary, but it will depend on the goal of the program. At the workshop staff iterated that RCT methodology was a best practice utilized by EPA, and FirstFuel recommends figuring out the goal of the program (i.e. population or building level savings), and applying the best technique to match the desired outcome. For example FirstFuel's per-building analysis, because of its scalability and cost-effectiveness, can be performed in a bottoms-up fashion on a very large population of

[3] Ibid.

> buildings and the expected savings accumulated to the population level. This provides both population level metrics as well as building level granularity of where the savings may be occurring."[4]

While RCT and Quasi-Experimental Design are statistically rigorous methods to measuring savings, it is unclear how AB 802 and Energy Division Staff can make this leap to apply energy efficiency baseline policy to apply to **only** these two approaches.

B. The Commission should support analytics enabled pre/post measurement for commercial buildings as rigorous methods to calculate savings.

ORA/TURN opening comments state "RCTs and quasi-experimental approaches are substantially more rigorous than pre/post designs because they account for changes in exogenous determinants of energy use that are unrelated to the efficiency intervention but can have a substantial impact on consumption." FirstFuel does not agree that RCT and quasi-experimental approaches are **more rigorous** than pre/post designs, as it depends on the use case and market segment. In the commercial market, FirstFuel provides statically rigorous advanced analytics to the market to measure meter-based savings at the building level.

ORA/TURN concludes their recommendations related to baseline policy by making the following statement:

> " Simple pre/post designs have difficulty accounting for these changes and risk over- or under-estimating savings due to factors unrelated to the efficiency intervention and in some cases could show negative savings even though the efficiency intervention is performing well. RCTs and quasi-experimental designs control for exogenous shifts in energy use by factoring out changes in energy consumption in similar buildings, resulting in more accurate estimates of the true

[4] FirstFuel's Informal Comments on AB 802 Workshops filed to Energy Division on February 10, 2016. http://www.cpuc.ca.gov/general.aspx?id=4130

impact of efficiency interventions. For this reasons, the Commission should amend the HOPPs framework to require the use of RCTs and quasi-experimental designs utilizing control or comparison groups whenever it is feasible to do so."[5]

FirstFuel is concerned with ORA/TURN's recommendation to diminish the rigor of pre/post monitoring and verification (M&V) for commercial customers. In February, FirstFuel submitted the following informal comments to explain how a robust baseline can account for exogenous factors:

"FirstFuel's methodology has incorporated several innovative components in our post-baseline analysis to alert and account for changes in building energy consumption. One of the most important components is our building-specific approach is its ability to detect a change event has occurred. FirstFuel's technology and core principles allow us to understand that most changes within an individual building have nothing to do with an energy conservation measure (ECM). The ability to detect and attribute exogenous changes, to tenants moving out and not as a result of an ECM intervention, is one of many challenges our platform has over come. Tenants moving out are a non-routine event, and having a model that is robust enough to alert this reduction in occupancy is important to the impact of savings within the each individual building. Continuous monitoring and a proper baseline analysis can support the persistence of savings and provide insight into changes in consumption over multiple years."[6]

Further, FirstFuel partnered with SCE to identify the impact of energy efficiency measures in the Preferred Resources Pilot (PRP).[7] This study showcases FirstFuel's ability to use algorithms to build robust baselines, understand if buildings can be

[5] Joint Comments of the Office of Ratepayer Advocates and the Utility Reform Network on Administrative Law Judge's Ruling Seeking Comment on Energy Efficiency Baseline Policy and Related Issues filed on May 17, 2016. p. 7.

[6] FirstFuel's Informal Comments on AB 802 Workshops filed to Energy Division on February 10, 2016. http://www.cpuc.ca.gov/general.aspx?id=4130

[7] https://www.sce.com/wps/wcm/connect/5b0de293-4a61-472b-a32b-ed9c2cd6aea2/EEImpactStudy_SCEWhitePaper.pdf?MOD=AJPERES

modeled with confidence, and most importantly, detect how much EE was actually being saved at the meter. This study shows that analytics enabled pre/post measurement for commercial buildings using NMEC is a rigorous methods to calculate savings.

CONCLUSION

FirstFuel Software urges the commission staff to keep AB 802 implementation flexible and to allow for advanced analytics to support meter-based savings for HOPPs. FirstFuel looks forward to supporting the utilities, Energy Division, stakeholders, and Commission in this next era of energy efficiency programs and helping the state's mission to achieve SB 350 energy efficiency goals and AB 32 GHG targets.

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Respectfully submitted,

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